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United States Department of Agriculture

Soil Conservation Service

Spokane, Washington

Washington Water Supply Outlook

JUNE 1, 1986

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ORIGINAL

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Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado (New Mexico)	2490 West 26th Ave., Denver, CO 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave., 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 98502; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

Washington
Water Supply Outlook

and

Federal — State — Private
Cooperative Snow Surveys

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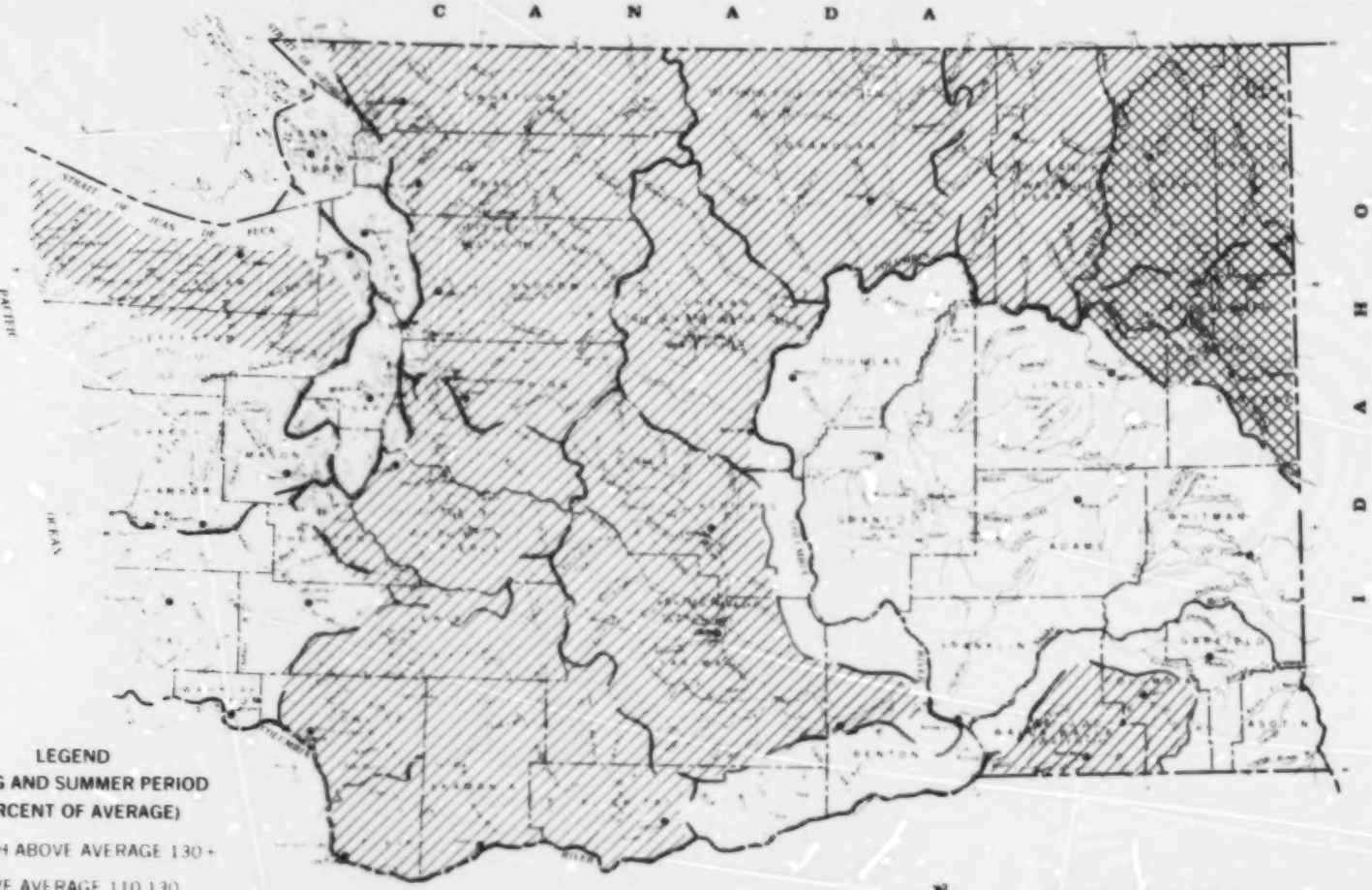
U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



LEGEND
SPRING AND SUMMER PERIOD
(PERCENT OF AVERAGE)

- MUCH ABOVE AVERAGE 130+
- ABOVE AVERAGE 110 130
- NEAR AVERAGE 90 110
- BELOW AVERAGE 70 90
- MUCH BELOW AVERAGE 70+ LESS
- NOT FORECAST
- WATERSHED BOUNDARY

SOURCE Data compiled by SCS Field Personnel.

JUNE 1, 1986

STREAMFLOW PROSPECTS
WASHINGTON

0 25 50 75 100 MI

0 50 100 150 KM

JANUARY 1986 4 R 39641

BASE 4 R 39260

GENERAL OUTLOOK

SUMMARY:

THIS IS THE FINAL WATER SUPPLY OUTLOOK REPORT OF THE SEASON, NEXT REPORT JANUARY 1987. With only a few manual snow courses read the 1st of June the SNOTEL sites give most of our snow information. Sixteen ofthe 34 sites were bare of snow on June 1. Paradise with 51 inches of water content had the most snow. Reservoir storage continues to be near normal. Precipitation was good over most of the state. Temperatures were below normal during the early part of May then above average for the last week.

SNOWPACK:

Above average temperatures for the last week in May accelerated the melt of the snow pack. Snow has melted from 16 of the 34 SNOTEL sites in Washington compared to last year when 20 sites were bare. There were 19 manual snow courses read this month with this small amount of courses few conclusions can be drawn.

PRECIPITATION:

The month of May had varied precipitation over Washington. The west and southeast were above normal while the eastern and central part were below normal. The Olympic Basin was at 209% of average with the north Puget Sound at 160%. The Okanogan area had 35% of normal precipitation while the Colville-Pend Oreille had 68%. The Yakima Basin was at 186% of average.

RESERVOIRS:

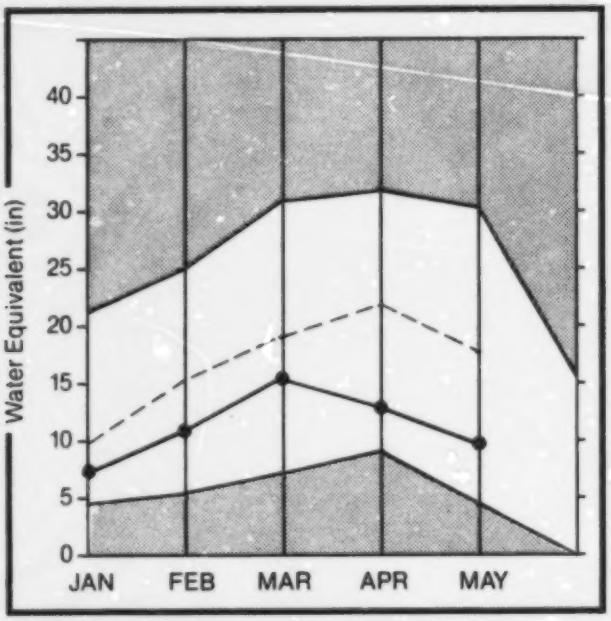
Stored irrigation water supplies are near average for June 1. The Yakima Basin has 937,600 acre-feet in the five major reservoirs which is average for June 1. Chelan Lake is at 133% of normal; Coeur d' Alene Lake is at 96%, and the Okanogan storage is at 99%. FDR lake is at 121% of average and the north Puget storage is at 112%.

STREAMFLOW:

Streamflow was near average in Washington rivers during May. The Chehalis River with 157% of average was the highest while the Spokane River with 55% was the lowest. Some flooding was experienced along the Okanogan River during the last of May; flooding was contained in the lowlands with only minor damages to homes. Streamflows were high during the last week of May as the warm weather melted the remaining snow.

SPOKANE

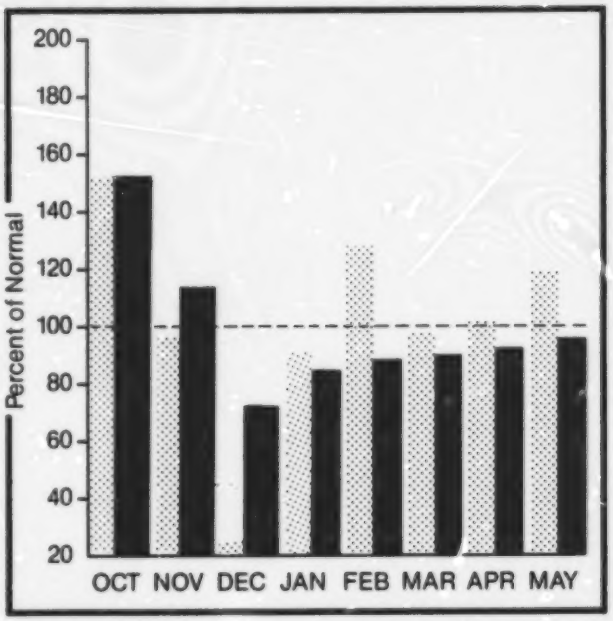
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

SPOKANE RIVER BASIN

WATER SUPPLY OUTLOOK:

Reservoir storage in Coeur d' Alene Lake is near average at 96%. Only one snow course was read in the basin this month and that showed 52% of normal. Streamflow in the Spokane River was 55% of normal for May, and the May-September flows are forecasted to be 52% of average. Temperatures averaged 1 degree above normal with the last week of May outweighing the much cooler first two weeks of the month.

For more information contact your local Soil Conservation Service office.

SPOKANE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SPOKANE at Post Falls	MAY-SEP	1977.0	1030.0	52	74	30				
	MAY-JUL	1884.0	970.0	51	73	30				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
COEUR D'ALENE	225.1	215.0	253.7	---

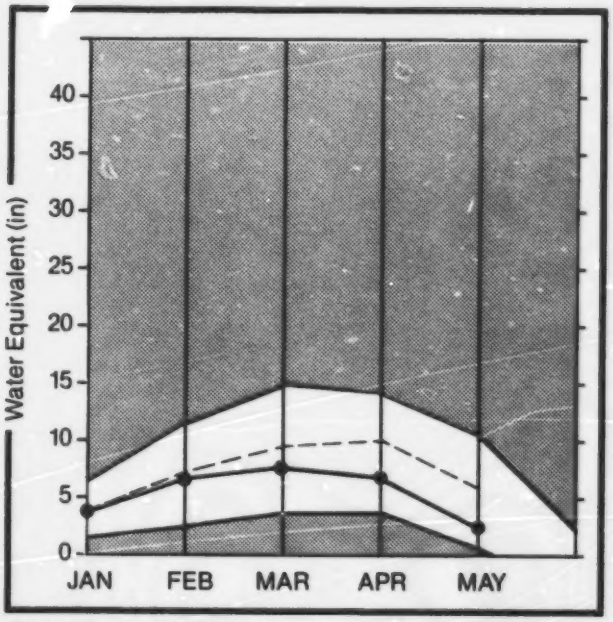
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Spokane River	2	68	49

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

COLVILLE AND PEND OREILLE

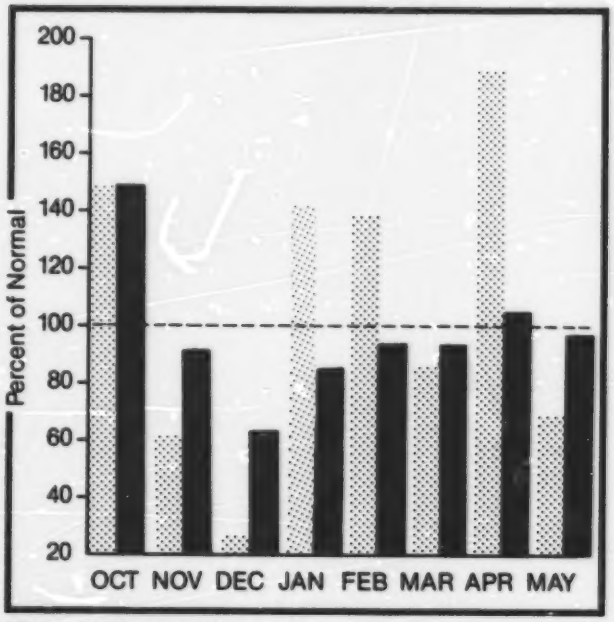
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

COLVILLE - PEND OREILLE RIVER BASINS

WATER SUPPLY OUTLOOK:

The Bunchgrass SNOTEL site was bare of snow on June 1. The last week in May saw nearly one foot of snow water leave the site. Streamflows in the basin for May were as follows: the Pend Oreille 74%, Kettle River 97% and the Columbia River at the International Boundary 90%. Precipitation for May was 68% of average bringing the year to date total down to 96% of average. Streamflows for May-July are forecast to be 79% on the Kettle River, 65% on the Colville and 66% on the Pend Oreille River.

For more information contact your local Soil Conservation Service office.

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COLVILLE - PEND OREILLE RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
PEND OREILLE RIVER bl Box Canyon	MAY-SEP	13316.0	8830.0	66	86	46				
	MAY-JUL	12047.0	7900.0	66	86	46				
	MAY-JUN	10119.0	6680.0	66	86	46				
CHAMOKANE CREEK	JUL-AUG	3.6	2.9	81	111	28				
COLVILLE RIVER at Kettle Falls	MAY-SEP	85.1	55.0	65	101	28				
	MAY-JUL	74.3	48.0	65	101	28				
	MAY-JUN	66.0	43.0	65	102	29				
KETTLE RIVER nr Laurier	MAY-SEP	1581.0	1260.0	80	98	62				
	MAY-JUL	1491.0	1180.0	79	97	61				
	MAY-JUN	1334.0	1050.0	79	97	61				
COLUMBIA RIVER at Birchbank *	MAY-SEP	41733.0	40600.0	97	110	84				
	MAY-JUL	32833.0	31800.0	97	110	84				
	MAY-JUN	23155.0	22460.0	97	110	84				
COLUMBIA RIVER at Grand Coulee *	MAY-SEP	60100.0	53600.0	89	100	78				
	MAY-JUL	49400.0	43500.0	88	99	77				
	MAY-JUN	37300.0	32820.0	88	99	77				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ROOSEVELT	5232.0	2990.6	1661.6	2851.0
BANKS	715.0	688.2	685.5	418.0

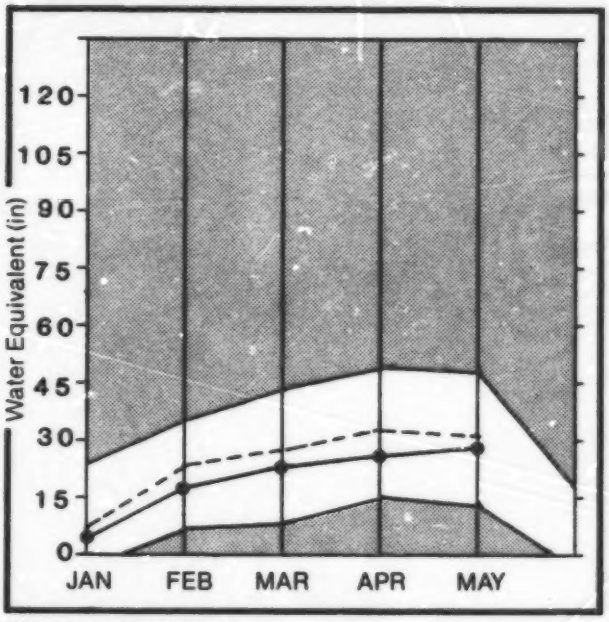
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
Colville River	0	0	0
Pend Oreille River	4	57	37
Kettle River	1	0	0
Deer Lake, Twin Lakes	0	0	0
Newman Lake	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

OKANOGAN AND METHOW

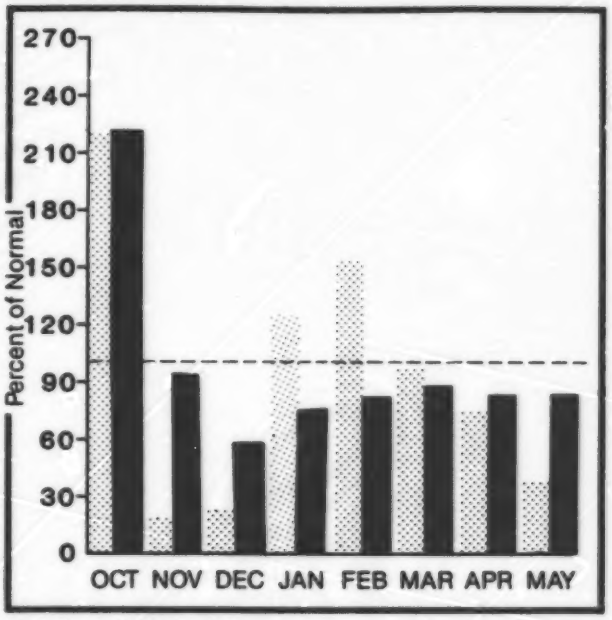
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

OKANOGAN - METHOW RIVER BASINS

WATER SUPPLY OUTLOOK:

Reservoir storage in the Okanogan Basin is near average. Precipitation for the Month of May was 35% of normal bringing the year to date to 82% of average. There were eight manual snow courses read in the Okanogan Basin for the June 1. Snow cover averaged 92% of normal. These courses were in the Canadian part of the basin. Streamflows during the last week of May were at flood stage on the Okanogan River. For May the flow averaged 98% for the Okanogan and 97% on the Similkameen.

For more information contact your local Soil Conservation Service office.

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OKANOGAN - METHOW RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SIMILKAMEEN R. nr Nighthawk	MAY-SEP	1376.0	1070.0	78	106	50				
	MAY-JUL	1279.0	990.0	77	105	49				
	MAY-JUN	1075.0	830.0	77	105	49				
OKANOGAN R. nr Tonasket	MAY-SEP	1517.0	1180.0	78	107	49				
	MAY-JUL	1370.0	1060.0	77	106	48				
	MAY-JUN	1135.0	870.0	77	106	48				
METHOW RIVER nr Pateros	MAY-SEP	900.0	720.0	80	104	56				
	MAY-JUL	828.0	650.0	79	103	54				
	MAY-JUN	693.0	555.0	80	104	56				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CONCONULLY LAKE (SALMON)	10.5	9.2	10.5	9.0
CONCONULLY RESERVOIR	13.0	9.3	11.8	9.0

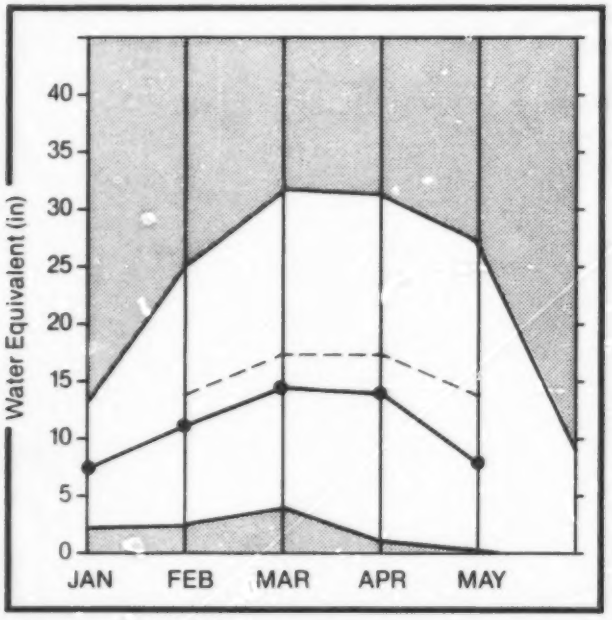
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Okanogan River	8	184	92
Methow River	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

WENATCHEE AND CHELAN

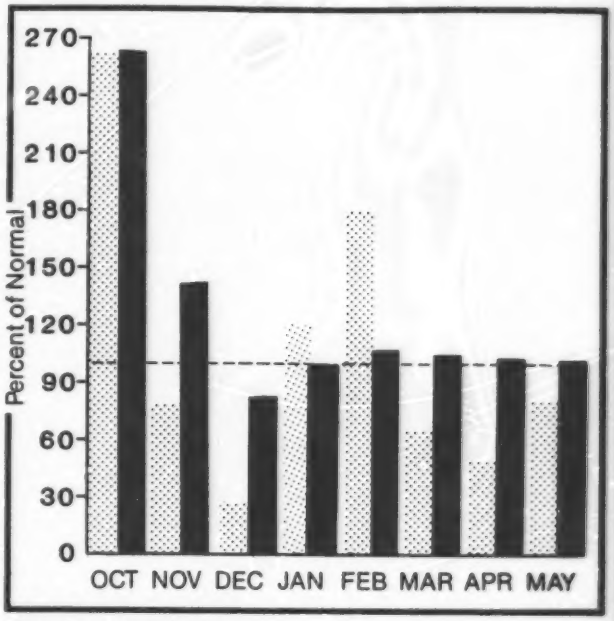
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WENATCHEE - CHELAN RIVER BASINS

WATER SUPPLY OUTLOOK:

Forecasted streamflow are 79% of average for the Wenatchee at Plain and 80% of normal on the Entiat Rivers and Chelan River. May streamflow was 91% of normal on the Chelan River, and 81% on the Wenatchee. Precipitation was 79% of average over the basin bringing the water year to date to 101% of normal. Storage in Chelan Lake was 599,000 acre feet or 133% of average.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CHELAN RIVER at Chelan *	MAY-SEP	1094.0	880.0	80	95	65				
	MAY-JUL	946.0	760.0	80	95	65				
	MAY-JUN	717.0	580.0	81	96	66				
STEHEKIN R. at Stehekin	MAY-SEP	860.0	710.0	83	93	73				
	MAY-JUL	727.0	600.0	83	93	72				
	MAY-JUN	553.0	460.0	83	93	73				
ENTIAT RIVER nr Ardenvoir	MAY-SEP	218.0	170.0	78	93	63				
	MAY-JUL	197.0	160.0	81	96	66				
	MAY-JUN	155.8	124.0	80	94	65				
WENATCHEE RIVER at Plain	MAY-SEP	1136.0	900.0	79	112	46				
	MAY-JUL	1002.0	790.0	79	112	46				
	MAY-JUN	765.0	600.0	78	111	45				
WENATCHEE R. at Peshastin	MAY-SEP	1523.0	1190.0	78	111	45				
	MAY-JUL	1356.0	1060.0	78	111	45				
	MAY-JUN	1048.0	820.0	78	111	45				
STEMILT nr Wenatchee (miners in)	MAY-SEP	138.0	105.0	76	109	43				
ICICLE CREEK nr Leavenworth	APR-SEP	370.0	280.0	76	109	43				
	APR-JUL	340.0	265.0	78	111	45				
	APR-JUN	270.0	210.0	78	111	45				
COLUMBIA R. bl Rock Island Dam *	MAY-SEP	65550.0	58700.0	90	101	79				
	MAY-JUL	54375.0	48000.0	88	99	77				
	MAY-JUN	41160.0	36225.0	88	99	77				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CHELAN LAKE	676.1	599.0	420.2	—

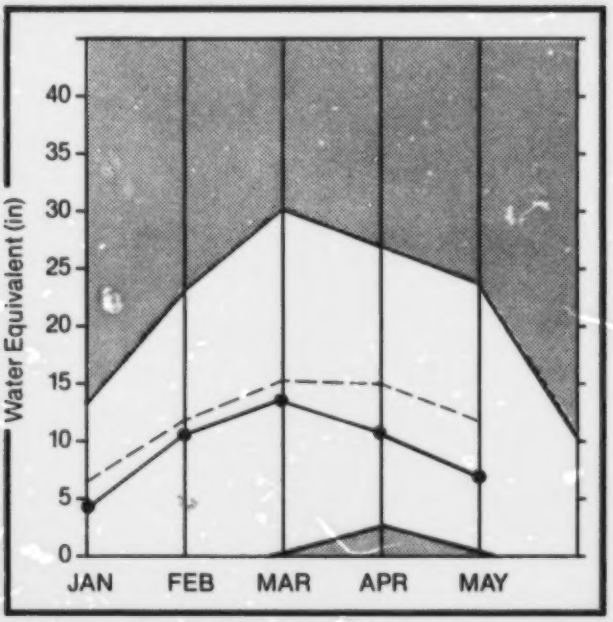
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Chelan Lake Basin	0	0	0
Entiat River	0	0	0
Wenatchee River	0	0	0
Colockum Creek	0	0	0
Squilchuck Creek	0	0	0
Stemilt Creek	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

YAKIMA

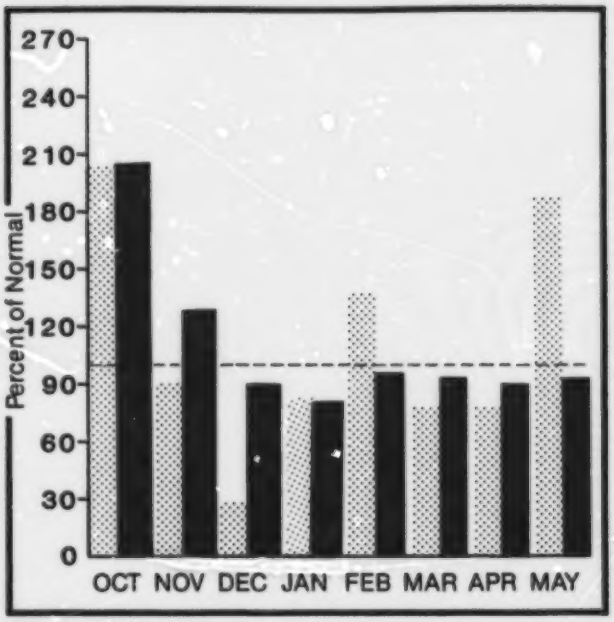
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

YAKIMA RIVER BASIN

WATER SUPPLY OUTLOOK:

The overall outlook for the Yakima River Basin has not changed significantly from last month. Streamflow forecasts range from 72 to 80% throughout the entire basin. Precipitation was above average for May at 186% bringing the water year to date to 93% of normal. Storage in the five major reservoirs was at 937,600 acre feet or 100% of average. May streamflow was 50%of average.

For more information contact your local Soil Conservation Service office.

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YAKIMA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
YAKIMA RIVER at Martin *	MAY-SEP	114.0	90.0	79	91	67				
	MAY-JUL	103.0	80.0	78	89	66				
	MAY-JUN	86.0	68.0	79	91	67				
YAKIMA RIVER at Cle Elum *	MAY-SEP	780.0	610.0	78	91	65				
	MAY-JUL	693.0	540.0	78	91	65				
	MAY-JUN	574.0	450.0	78	91	65				
YAKIMA RIVER nr Parker *	MAY-SEP	1711.0	1230.0	72	91	53				
	MAY-JUL	1510.0	1080.0	72	91	53				
	MAY-JUN	1274.0	920.0	72	91	53				
KACHESS RIVER nr Easton *	MAY-SEP	98.0	76.0	78	92	63				
	MAY-JUL	92.0	71.0	77	91	63				
	MAY-JUN	78.0	60.0	77	91	63				
CLE ELUM RIVER nr Roslyn *	MAY-SEP	400.0	310.0	78	90	66				
	MAY-JUL	360.0	277.0	77	89	65				
	MAY-JUN	291.0	225.0	77	89	65				
BUMPING RIVER nr Nile *	MAY-SEP	126.0	100.0	79	94	64				
	MAY-JUL	114.0	90.0	79	94	64				
	MAY-JUN	91.0	73.0	80	96	65				
AMERICAN RIVER nr Nile	MAY-SEP	114.0	90.0	79	91	67				
	MAY-JUL	103.0	80.0	78	89	66				
	MAY-JUN	82.0	65.0	79	91	67				
TIETON RIVER at Tieton *	MAY-SEP	214.0	164.0	77	93	61				
	MAY-JUL	175.0	135.0	77	93	61				
	MAY-JUN	133.0	102.0	77	92	61				
NACHES RIVER nr Naches *	MAY-SEP	728.0	570.0	78	92	64				
	MAY-JUL	645.0	500.0	78	91	64				
	MAY-JUN	530.0	415.0	78	92	64				
AHTANUM CREEK nr Tampico *	MAY-SEP	39.0	29.0	74	97	51				
	MAY-JUL	35.0	26.0	74	97	51				
	MAY-JUN	29.0	22.0	76	97	55				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
KEECHELUS	157.8	125.1	154.0	144.0
KACHESS	239.0	213.9	236.7	218.0
CLE ELEM	436.9	384.5	352.4	378.0
BUMPING LAKE	33.7	34.5	32.8	27.0
RIMROCK	198.0	179.9	157.2	167.0

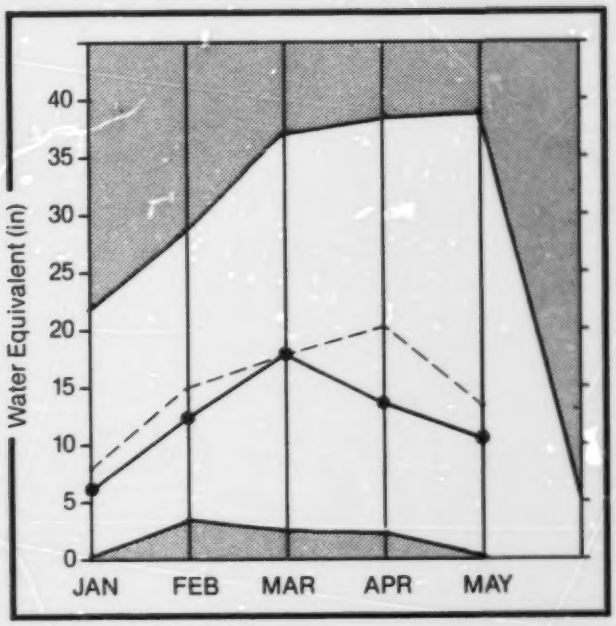
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Yakima River	3	24	15
Ahtanum Creek	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

WALLA WALLA

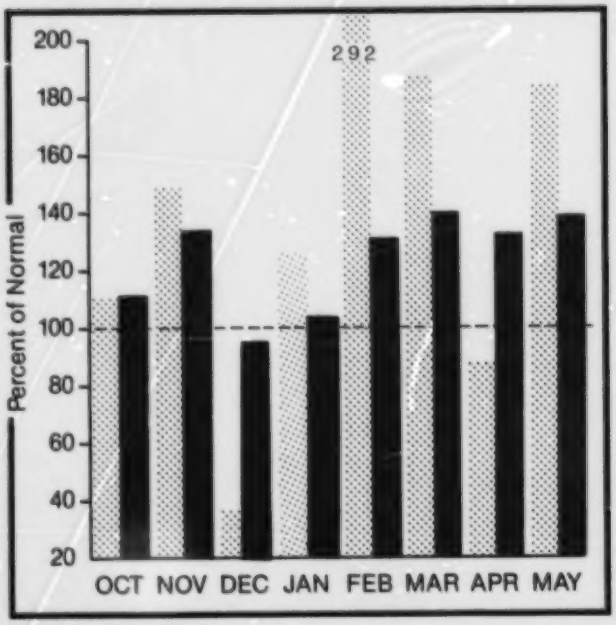
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WALLA WALLA RIVER BASIN

WATER SUPPLY OUTLOOK:

Precipitation was at 183% of average for May which brought the water year to date total to 138% of normal. Streamflow in the Walla Walla River was 74% of average for May. Forecasted streamflow in the Walla Walla River is 76% of normal for the May-July period. Temperatures for the month were average with the cold first two weeks balanced out by the warmer temperatures last week. Snow has melted at the Touchet SNOTEL site.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
MILL CREEK NEAR WALLA WALLA	MAY-SEP	7.7	5.9	77	117	39				
	MAY-JUN	7.3	5.5	75	110	41				
	MAY-JUL	7.5	5.7	76	120	40				
COLUMBIA R. at The Dalles x	MAY-SEP	88290.0	77800.0	88	101	75				
	MAY-JUL	73760.0	62800.0	85	98	72				
	MAY-JUN	57360.0	48800.0	85	98	72				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	xx USEABLE STORAGE xx THIS YEAR	LAST YEAR	AVE.

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Mill Creek	0	0	0

xCorrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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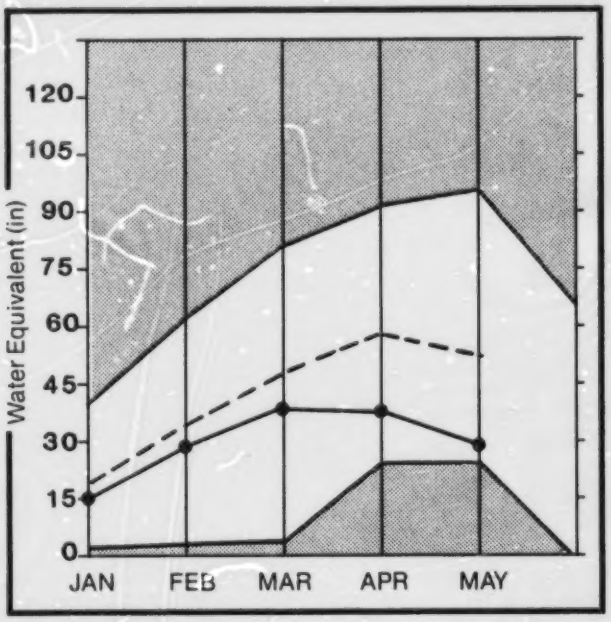
COWLITZ AND LEWIS

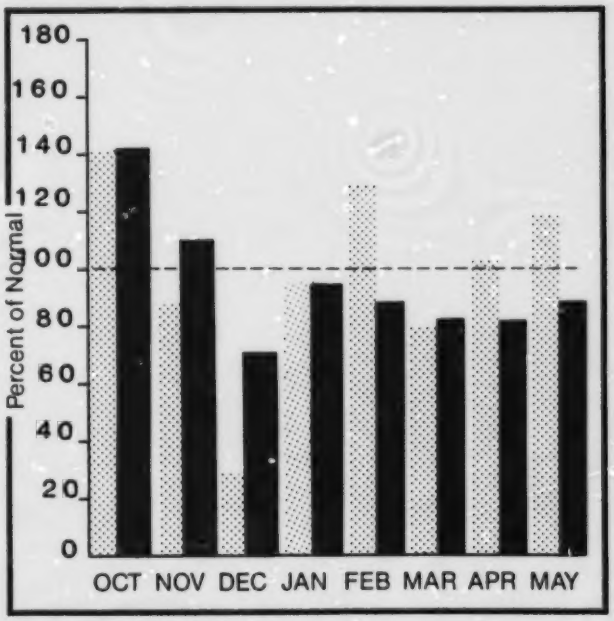
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

COWLITZ - LEWIS RIVER BASINS

WATER SUPPLY OUTLOOK:

Nearly all snow has melted from the watershed during the last week in May. The SNOTEL sites above 4000 feet are showing small amounts of water left on the pillows. Precipitation during May was 118% of normal bringing the water year to date to 88% of average. Streamflow for May was 97% of normal on the Cowlitz River. Forecasted streamflow on the Lewis River for the May-July period is 88% of average and 80% for the Cowlitz River at Castle Rock.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
LEWIS RIVER at Ariel x	MAY-SEP	900.0	790.0	88	112	64				
	MAY-JUL	737.0	650.0	88	112	64				
	MAY-JUN	612.0	540.0	88	112	64				
COWLITZ R. bl Mayfield Dam x	MAY-SEP	1617.0	1250.0	77	126	28				
	MAY-JUL	1357.0	1045.0	77	126	28				
	MAY-JUN	1081.0	830.0	77	126	28				
COWLITZ R. at Castle Rock x	MAY-SEP	2058.0	1650.0	80	129	31				
	MAY-JUL	1708.0	1370.0	80	129	31				
	MAY-JUN	1365.0	1090.0	80	129	31				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	xx USEABLE STORAGE xx THIS YEAR	LAST YEAR	AVE.

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Cowlitz River	1	30	8
Lewis River	0	0	0

xCorrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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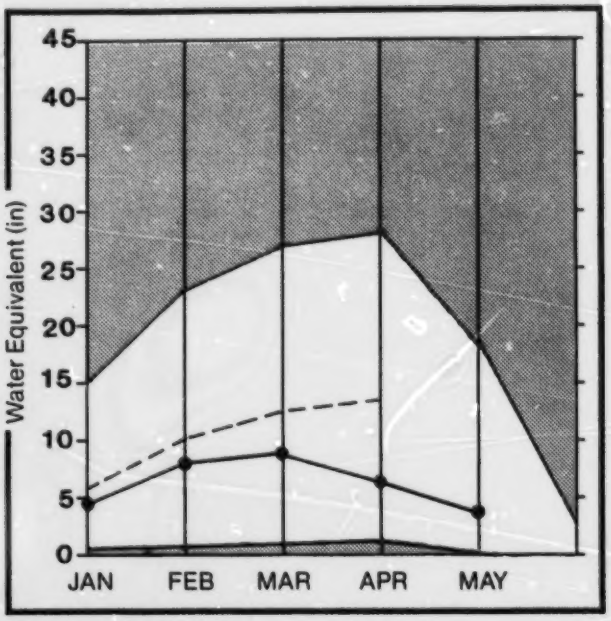
WHITE - GREEN

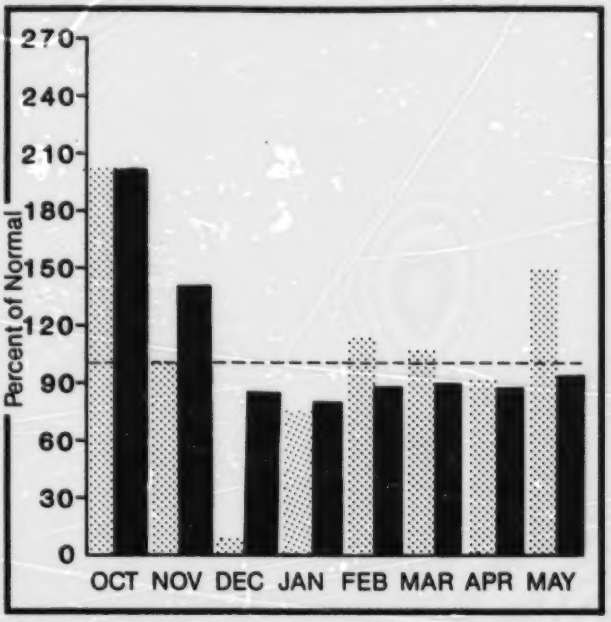
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WHITE - GREEN RIVER BASINS

WATER SUPPLY OUTLOOK:

Precipitation for May was 149% of average in the Green-White River Basins. Forecasted streamflow remains below normal with 70% forecast for the Green River and 73% on the Cedar River. The year to date precipitation is 93% of normal.

For more information contact your local Soil Conservation Service office.

WHITE - GREEN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
GREEN RIVER bl Howard Hanson Dam *	MAY-SEP	316.0	225.0	71	88	54				
	MAY-JUL	284.0	200.0	70	87	54				
	MAY-JUN	256.0	180.0	70	82	48				
CEDAR RIVER nr Cedar Falls	MAY-SEP	74.2	54.0	73	90	55				
	MAY-JUL	65.5	48.0	73	90	56				
	MAY-JUN	54.1	40.0	74	91	57				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
White River	0	0	0
Green River	1	23	20

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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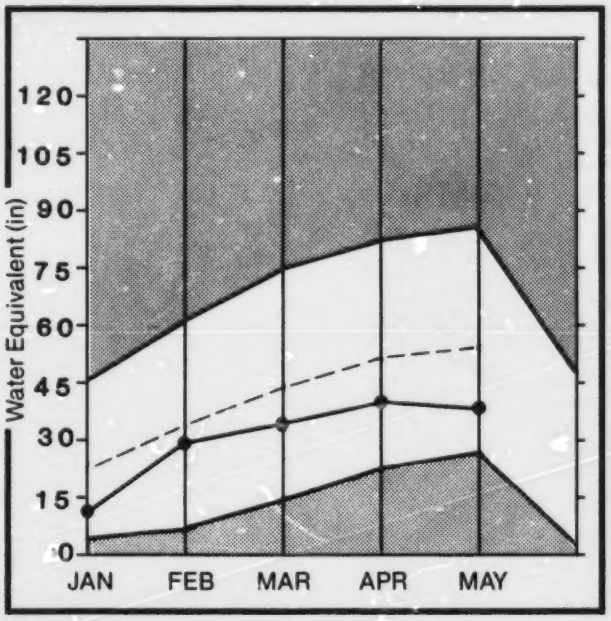
NORTH PUGET SOUND

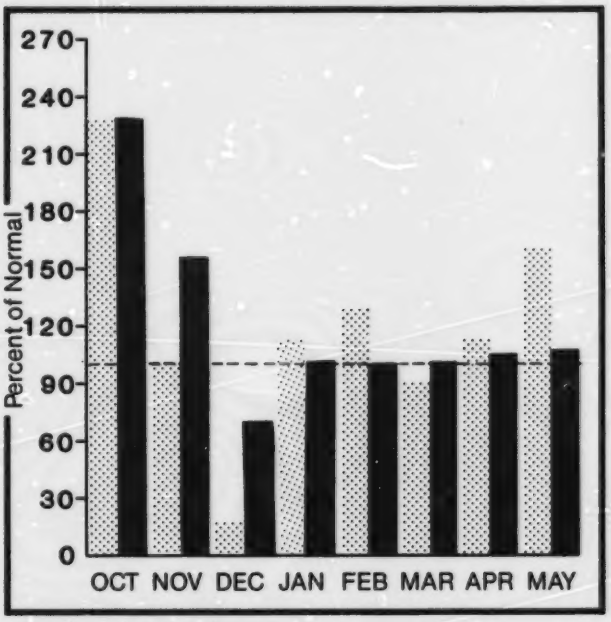
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

NORTH PUGET SOUND RIVER BASINS

WATER SUPPLY OUTLOOK:

There were no manual snow courses read for the June 1 reporting period. The Harts Pass SNOTEL site has 29.1 inches of water content remaining on the pillows as of the June 1. Precipitation for the month of May averaged 160% of normal bringing the water year to date to 107% of average. Streamflow for May was 82% of normal on the Skagit River. Forecasted streamflow for the Skagit River for the May-July period is 80% of average. Reservoir storage in Ross is 112% of normal for June 1.

For more information contact your local Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SKAGIT RIVER at Newhalem *	MAY-AUG	2532.0	2030.0	80	95	65				
	MAY-SEP	2356.0	1880.0	80	95	65				
	MAY-JUL	1972.0	1580.0	80	95	65				
	MAY-JUN	1485.0	1190.0	80	95	65				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ROSS	1404.1	1160.9	1011.5	---
DIABLO RESERVOIR	90.6	87.2	86.8	---
GORGE RESERVOIR	9.8	7.5	8.2	---

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Skagit River	0	0	0
Baker River	0	0	0
Cedar River	0	0	0
Snoqualmie River	0	0	0
Skykomish River	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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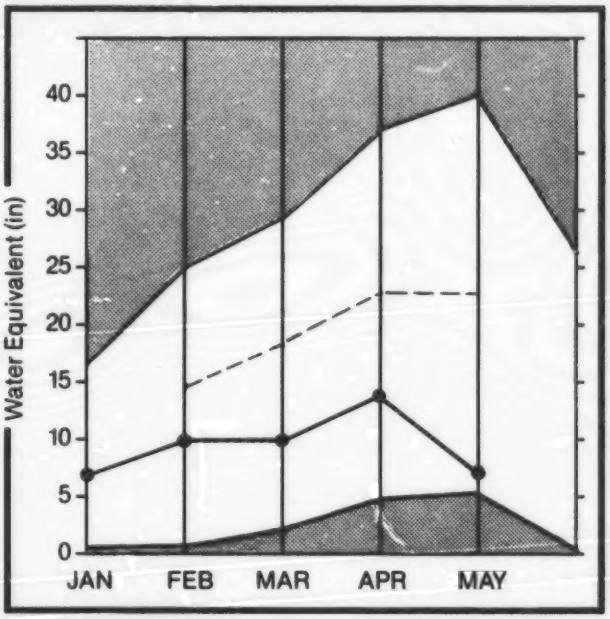
OLYMPIC

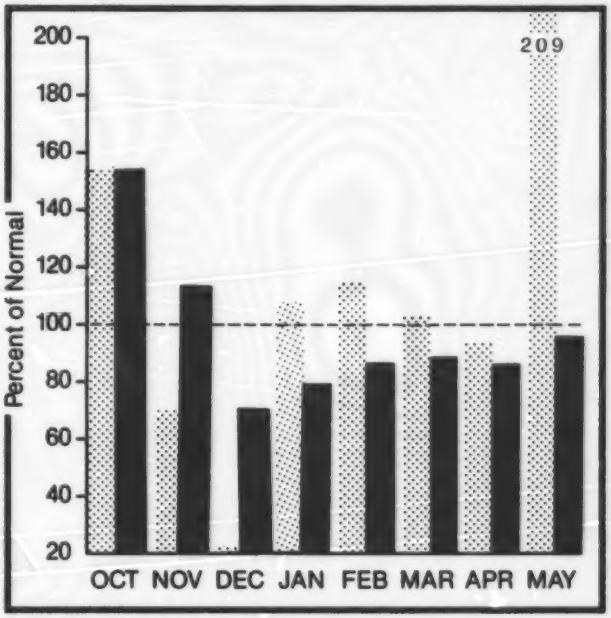
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

OLYMPIC PENINSULA RIVER BASINS

WATER SUPPLY OUTLOOK:

Forecasts of streamflow for the Olympic Peninsula Rivers is much the same as last month at 72-73% for the May-July period. Precipitation for May was 209% of average with the Quillayute WSO reporting 11.02 inches. The water year to date total is 95% of average. All snow has left the Carrol Pass snow pillow.

For more information contact your local Soil Conservation Service office.

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OLYMPIC PENINSULA RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
DUNGENESS RIVER nr Sequim	MAY-SEP	160.0	116.0	73	89	56				
	MAY-JUL	130.0	94.0	72	89	55				
	MAY-JUN	97.0	70.0	72	89	56				
ELWHA RIVER nr Port Angeles	MAY-SEP	553.0	400.0	72	89	55				
	MAY-JUL	454.0	325.0	72	89	55				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
Dungeness River	0	0	0
Horse Creek	0	0	0
Elwha River	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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CONSERVE YOUR IRRIGATION WATER

Can irrigators use less water and get good yields? We think so. With energy costs on an upward spiral and water shortages likely, we offer these water saving ideas to irrigators.

Consider ditch lining or gated pipe. This will reduce the 10-90 percent loss which occurs in earch ditches.

Keep ditches clean and free from weeds, sediment, or other debris, which can slow water velocity, affect delivery rate, and increase evaporation.

Make sure headgates, drop structures, and pipe inlets are operational. A washed-out structure is water lost.

Inspect ditchbanks for rodent damage. Rodent holes cause leakage or failures.

Make sure sprinkler nozzles aren't worn or leaky. Check pipe connections and valves to prevent leaks.

Operate sprinklers at recommended pressure to effectively use available water.

Maintain your pump at peak efficiency to save energy.

BETTER WATER MANAGEMENT

Better water management may require more labor. It may require changing a head of water in the middle of the night. But it will be worth it. You should:

Measure your water to determine how much is applied.

Consider alternate row irrigation for crops planted in furrows.

Plan short runs. Match stream size and velocity to soil intake rate and capacity.

Catch and reuse tail water.

Underirrigate the lower end of field to stretch your water.

And when water is short, consider eliminating that last irrigation.

Soil Conservation Service personnel can:

Help plan and design new irrigation systems or evaluate existing ones.

Provide technical assistance for land leveling, pipeline installation, and other practices.

KNOW YOUR SOIL

Soil absorbs irrigation water at a given rate. This varies with each soil type. Some crops require more water than others. Check soil moisture by spade, probe, or moisture meter. Or use the "feel" method.

WHEN IRRIGATION IS NEEDED, SOIL WILL FEEL AND ACT THIS WAY

Soil Texture	A handful of soil will
Coarse	Tend to stick together slightly, but will not form a ball.
Medium	Be crumbly, but will form a ball.
Fine	Be pliable, and will form a ball.

If you have a conservation plan on your farm, or if the soil in your area has been mapped, the Soil Conservation Service can crosscheck soil type and irrigation data and provide you with the water holding capacity of your soil for a given crop.

Snow Survey data can be obtained by calling one of the following local SCS offices:

PULLMAN PMC

Office		(509) 335-7376
Farm		(509) 335-9689

OLYMPIA, Area I

Area Office	FTS	434-9454 or 9455
Chehalis		(206) 748-0083
Kelso		(206) 425-1880
Lake Stevens	FTS	392-9259
Lynden		(206) 354-5658
Montesano		(206) 249-5900
Mt. Vernon		(206) 424-5153
Olympia FO	FTS	434-9448
Port Angeles	FTS	396-4277
Port Orchard		(206) 876-5529
Puyallup		(206) 845-5533
Raymond		(206) 942-5945
Renton	FTS	399-3325 or 3326
Vancouver	FTS	422-7631

EPHRATA, AREA II

Area Office	FTS	446-4374 or 4375
Davenport		(509) 725-4131 or 725-1345
Ephrata FO	FTS	446-4385
Moses Lake		(509) 765-3261
Okanogan		(509) 422-2750
Othello		(509) 488-2802
Ritzville		(509) 659-0254
Waterville		(509) 745-8362
Wenatchee	FTS	390-0242 or 0260

YAKIMA, AREA III

Area Office	FTS	446-5865 or 5866
Ellensburg		(509) 925-5375
Goldendale		(509) 773-5823
Pasco		(509) 545-8546 or 8547
Prosser		(509) 786-1923
Sunnyside		(509) 837-7911
Toppenish		(509) 865-4012
Walla Walla	FTS	434-6340
White Salmon		(509) 493-1936
Yakima FO	FTS	446-5909

SPOKANE, AREA IV

Area Office	FTS	439-3726
Cheney		(509) 458-6200, Ext 2309
Clarkston		(509) 758-8012
Colfax		(509) 397-4636
Colville		(509) 684-5067
Dayton		(509) 382-2351
Fairfield		(509) 283-2331
Newport		(509) 447-4217
Pomeroy		(509) 843-1998
Republic		(509) 775-3473
Spokane FO	FTS	439-2120

SOIL SURVEY OFFICES

Bellingham		(206) 676-3520
Inchelium		(509) 722-4395
Nespelem	FTS	439-9431
Wapato		(509) 877-4004

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The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canada:

Ministry of the Environment, Water Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
  Corps of Engineers
U.S. Department of Agriculture
  Forest Service
U.S. Department of Commerce
  NOAA, National Weather Service
U.S. Department of the Interior
  Bonneville Power Administration
  Bureau of Reclamation
  Geological Survey
  National Park Service
  Bureau of Indian Affairs

Local:

City of Tacoma
City of Seattle
Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company
Snohomish County P.U.D.

Private:

Okanogan Irrigation District
Wenatchee Heights Irrigation District
Newman Lake Homeowners Association

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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